

ACRONYM: BEAT-AMR**Title: Partnership against Biofilm-associated Expression, Acquisition and Transmission of AMR****Keywords: Biofilm infections, evolution in biofilms, antibacterial coatings, singlecell microbiology, nextgeneration sequencing, multidrug interactions****Consortium composition:**

Type	Name	Institute	Country
C	Schreiber, Frank	Federal Institute for Materials Research and Testing (BAM), Berlin	Germany
P	Ren, Qun Zulian	Empa. Materials Science and Technology, St. Gallen	Switzerland
P	van der Mei, Henny C.	University Medical Center Groningen (UMCG) / Biomedical Engineering	Netherlands
P	Webb, Jeremy S.	University of Southampton / Biological Sciences	United Kingdom
P	Faust, Saul N.	University Hospital Southampton NHS Foundation Trust	United Kingdom

Abstract:

A relatively recent advance in microbiology is the finding that the majority of infections are caused by bacterial biofilms. Biofilms are structured communities of bacteria found on surfaces that become embedded within a self-produced extracellular polymeric matrix. Biofilms can form on tissues or on biomedical surfaces, such as blood catheters or implants, where they act as a reservoir of potential healthcare associated infection.

Bacteria living in biofilms can tolerate much higher antibiotic concentrations compared to planktonic bacteria and survive long enough to evolve antimicrobial resistance (AMR). They form persistent, hard to treat infections and exhibit an intrinsic biology that promotes the development and transmission of AMR.

The goal of our consortium is to determine how bacteria adapt to antimicrobials during biofilm formation on surfaces coated with antimicrobials, how AMR mutations are acquired and evolve within mature biofilms, and how population dynamics within biofilms affect the transmission of AMR.

We address the hypothesis that understanding the contribution of biofilms to AMR acquisition and spread will lead to the development of novel antimicrobial strategies and medical devices that are more effective in preventing biofilm-associated infection and AMR.

Our team provides facilities and clinical research governance for experimental and translational medicine. Our synergy of leading laboratory, clinical and translational research across Europe will ensure the best chance to develop novel and successful interventions and therapeutic outcomes.